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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,998	02/07/2002	Max Shurgalin	13445-006001 / OG4 (6065)	4628
26161	7590	07/28/2004	EXAMINER NGUYEN, TU T	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/068,998	<b>Applicant(s)</b> SHURGALIN ET AL.	
	<b>Examiner</b> Tu T. Nguyen	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-67 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knight et al (Optics Letters, Vol. 21, No. 19, October 1, 1996).

With respect to claims 1,14,27,53-54, Knight discloses a method for investigating properties of a photonic crystal fiber (page 1548, column 1, second paragraph). The method comprises: launching a test signal into one end of the fiber; detecting the light at an output end and determining the properties of the fiber (page 1548, column 1, second paragraph) or observing a breaking of hexagonal symmetry (page 1549, column 2, paragraph 1) which considered as a defect in the fiber.

Knight does not explicitly disclose measuring light reflected from within the fiber. However, the claimed limitation would have been obvious according to the characteristic of the photonic fiber.

With respect to claims 2-4,11,41-43,29,51, Knight discloses testing the fiber with a multiple wavelengths (page 1548, column 1, second paragraph).

With respect to claims 5-7,9-10,12,32-34,44-47, Knight discloses a benefit for using light having frequencies at the band-gap (page 1547, column 1, first paragraph). It would have been obvious to use the test signals related to or near the band-gap of the fiber to facilitate the testing.

With respect to claims 8,13,20-26,28,30-31,48,55-59,62-63, Knight does not disclose determining difference between the first and second measurement signals. However, it would have been obvious to modify Knight with different methods, such as determining difference between the measurement signals or distance related to the time lapse, for detecting different types of defect or the location of the defect to ensure the quality of the fiber.

With respect to claim 15, Knight does not disclose detecting a backscattered light. However, determining a defect of an optical fiber by using a backscattered light or an Optical Time Domain Reflectometer (OTDR) would have been known. It would have been obvious to modify Knight with the known method to facilitate the testing.

With respect to claims 16-17,19,35,38-39,49-50, it would have been obvious a design choice to modify Knight's method to monitor the fiber in different environments such as during the cabling or during the drawing to check the condition of the fiber before transferring to the next stage.

With respect to claim 36, Knight disclose a length of the fiber (page 1548, column 1, second paragraph).

With respect to claims 18,37,52, the claimed fiber types would have been known. It would have been obvious to modify Knight to test different types of fiber to reduce the cost.

With respect to claim 40, refer to discussion in claim 1 above and claim 3 for multiple wavelengths.

With respect to claim 60, refer to discussion in claim 1 above and claim 6 for wavelength near the edge of a band-gap.

With respect to claim 61, refer to discussion in claim 1 above and claim 13 for the time lapse.

With respect to claims 64-67, refer to discussion in claim 1 above and claim 16 for detecting at the drawing or cabling stations.

### ***Response to Arguments***

Applicant's arguments filed on 04/19/2004 have been fully considered but they are not persuasive. The final rejection is necessitated by the present amendment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T. Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toatley Jr. Gregory can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu T. Nguyen  
Primary Examiner  
Art Unit 2877

07/22/2004